Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (original): A controller that processes the mass spectrum of a sample provided by a detector of a mass spectrometer, the controller providing a constant false alarm rate (CFAR) processing of the mass spectral data received, the CFAR processing the mass spectral data to determine noise included in the mass spectral data and outputting spectral peaks when the mass spectral data exceeds a threshold that reflects the noise included in the spectral data, the output peaks being compared with spectral peaks for known threats stored in a database and providing a notification that a known threat is present in the sample if there is a correspondence between one or more output spectral peaks and one or more spectral peaks of a known threat as stored in the database.

2. (original): The controller of Claim 1, wherein the noise included in the mass spectral data comprises the noise of the mass spectrometer.

3. (original): The controller of Claim 1, wherein the processing of the mass spectral data by the CFAR to determine noise included in the mass spectral data comprises determining an estimate of the noise for a sample test cell of the mass spectral data, and determining when the mass spectral data exceeds a threshold that reflects the noise included in the spectral data, determination of the threshold value comprising substituting the noise estimate in a noise distribution for the mass spectrometer.

4. (original): The controller of Claim 1, wherein the CFAR processing of the mass spectral data comprises creating a succession of sample test cells that each represent the signal intensity of a mass value of the mass spectral data, the width of each sample test cell being determined by the width of a resolution cell of the mass spectral data, the width of the resolution cell and, consequently, the width of the sample test cell, being a function of the mass value.

5. (original): The controller of Claim 4, wherein the outputting of a spectral peak when the mass spectral data exceeds a threshold comprises comparing the signal intensity of the sample test cell with the threshold and outputting a spectral peak when the signal intensity exceeds the threshold.

6. (original): The controller of Claim 5, wherein the processing of the mass spectral data by the CFAR to determine noise included in the mass spectral data comprises determining a noise estimate in the vicinity of each sample test cell based on a portion of the spectral signal near the sample test cell.

7. (currently amended): The controller of Claim 6, wherein the CFAR determines the threshold that reflects the noise ~~nose~~ included in the spectral data, determination of the threshold comprising substituting the noise estimate for the sample test cell in a noise distribution for the mass spectrometer.

8. (original): The controller of Claim 1, wherein prior to being compared with spectral peaks for known threats stored in a database, the output spectral peaks are evaluated with respect to an expected peak width range.

9. (original): The controller of Claim 1, wherein the spectral peaks for known threats stored in the database have a corresponding ranking code and, after the comparison of the output peaks with spectral peaks for known threats stored in a database determines that one or more output peaks corresponds to one or more spectral peaks for a known threat, the one or more ranking codes of the corresponding one or more spectral peaks for the known threat are used to determine whether the known threat is present in the sample.

10. (original): The controller of Claim 1, wherein the controller and the mass spectrometer are part of a mass spectrometry system.

11. (original): The controller of Claim 10, wherein the mass spectrometry system is a field portable mass spectrometer.